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10/611,422	07/02/2003	Young-sun Chun	1293.1786	2563

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EXAMINER

HUFFMAN, JULIAN D

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2853

SHORTENED STATUTORY PERIOD OF RESPONSE	MAIL DATE	DELIVERY MODE
3 MONTHS	03/27/2007	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

Office Action Summary	Application No. 10/611,422	Applicant(s) CHUN, YOUNG-SUN	
	Examiner Julian D. Huffman	Art Unit 2853	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 12 January 2007.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-23 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 5, 11, 18 and 19 is/are allowed.
- 6) ☒ Claim(s) 1-4, 6-10, 12-17 and 20-23 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Claim Objections

1. Claim 13 is objected to because of the following informalities:

The language "none-zero" is unclear. It is assumed that applicant intended to mean "non-zero".

Appropriate correction is required.

Claim Rejections - 35 USC § 102

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

3. Claims 13 and 22 are rejected under 35 U.S.C. 102(b) as being anticipated by Haselby et al. (U.S. 5,250,956).

Haselby et al. discloses:

With regards to claim 13, an apparatus (fig. 6) for measuring an image alignment error for image formation in an image forming apparatus having a carriage (fig. 6), the apparatus comprising:

a test marking print-directing unit (element 45) which prints first and second test marks on a printing medium according to a designated non-zero error distance (fig. 13a, the printing device designates the head to print and this produces the resulting error distance of the marks on the paper, column 14, lines 37-45);

an error distance detecting unit which detects only the first and second test marks for compensating for the image alignment error according to the detected the first and second test marks (65, column 14, lines 37-45, if the detected error distance is different from the designated error distance, an error is detected).

With regards to claim 22, a method of measuring an image alignment error for image formation in an image forming apparatus having a carriage (fig. 6), the method comprising:

printing only first and second test marks on a printing medium according to a designated non-zero error distance (fig. 13 and column 14, lines 37-45); and

detecting only the first and second test marks to detect an actual error distance between the first and second test marks for compensating for the image alignment error according to the detected the first and second test marks (column 14, lines 37-45).

4. Claims 7-10, 12-15, 20 and 21 are rejected under 35 U.S.C. 102(e) as being anticipated by Ikeda (U.S. 6,607,260 B1).

Ikeda discloses:

With regards to claim 7, an apparatus for measuring image alignment errors for image formation in an image forming apparatus having a carriage (fig. 1, abstract), the apparatus comprising:

a test mark print-directing unit (fig. 3) which directs the carriage to print two test marks (figs. 1 and 4, a-F and a-R) separated from each other by a designated error distance (0) on a printing medium on which images are printed (column 13, lines 57-65, column 14, lines 13-30);

a test mark sensing unit (fig. 3, element 1) which senses only the two test marks for the measuring of image alignment error (the sensor is capable of sensing only the two test marks), and outputs a sensed result of the two test marks (column 13, lines 39-42, column 14, lines 44-46 and 52-55);

a reference clock generating unit (fig. 3, element 7) which generates a reference clock and outputs the generated reference clock (column 13, lines 47-48);

a sensed instant of time measuring unit (fig. 3, counter, element 9) which compares the sensed result of the two test marks with the generated reference clock to measure instants of time when the two test marks are sensed according to a movement of the carriage, and outputs the measured instants of time (column 13, lines 48-50, column 14, line 63-column 15, line 10); and

an error distance detecting unit (fig. 3, element 13) which detects an actual error distance of the two test marks using the measured instants of time and a moving speed of the carriage and outputs the detected actual error distance (column 13, lines 51-53 and column 15, lines 6-40).

With regards to claims 8 and 9, the test mark print-directing unit directs the carriage to print each of the two test marks on the printing medium using different image printing methods or in different printing directions (first mark is printed in first direction which is a first printing method and second mark is printed in second direction which is a second printing method, column 14, lines 18-22).

With regards to claim 10, the error distance detecting unit (fig. 3, element 13) detects a time difference between the measured instants of time of the two test marks and multiplies the detected time difference by the moving speed of the carriage to output the detected actual error distance (column 15, line 26).

With regards to claim 12, an image alignment correction value detecting unit (fig. 3, element 13) which obtains a distance difference between the designated error distance and the actual error distance, detects an image alignment correction value from the distance difference, and outputs the detected image alignment correction value to compensate for the image alignment errors (column 15, lines 6-39).

With regards to claim 13, Ikeda discloses an apparatus for measuring an image alignment error for image formation in an image forming apparatus having a carriage (fig. 1, abstract), the apparatus comprising:

a test mark print-directing unit (fig. 3) which prints first and second test marks on a printing medium (figs. 1 and 4, a-F and a-R) according to a designated error distance (column 13, lines 57-65, column 14, lines 13-30); and

an error distance detecting unit (fig. 1, element 13) which detects only the first and second test marks for compensating for the image alignment error according to the detected the first and second test marks (the error distance detecting unit/optical sensor is capable of operating in the manner claimed).

With regards to claim 14, an apparatus for measuring an image alignment error for image formation in an image forming apparatus having a carriage (fig. 1, abstract), the apparatus comprising:

a test mark print-directing unit (fig. 3) which directs the carriage to print first and second test marks (figs. 1 and 4, a-F and a-R) on a printing medium according to a designated error distance (column 13, lines 57-65, column 14, lines 13-30);

a test mark sensing unit (fig. 3, element 1) which senses only the first and second test marks (the test mark sensing unit is capable of detecting only the two marks), for the measuring of image alignment error, and outputs first and second sensed results of the first and second test marks (column 13, lines 39-42, column 14, lines 44-46 and 52-55);

a sensed instant of time measuring unit (fig. 3, element 7) which measures instants of time when the first and second test marks are sensed, according to the first and second sensed results, and outputs the measured instants of time (column 13, lines 48-50, column 14, line 63-column 15, line 10); and

an error distance detecting unit (fig. 3, element 13) which detects an actual error distance of the first and second test marks using the measured instants of time to compensate for the image alignment error according to the detected actual error

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distance of the first and second test marks (column 13, lines 51-53 and column 15, lines 6-40).

With regards to claim 15, a reference clock generating unit (fig. 3, element 7) which generates a reference clock, wherein the sensed instant of time measuring unit generates the measured instants of time according to the sensed result of the first and second test marks and the generated reference clock (column 13, lines 48-50, column 14, line 63-column 15, line 10).

With regards to claim 20, the carriage moves in a first direction, the printing medium moves in a second direction, and the first and second test marks are printed in one of the first and second directions (fig. 1).

With regards to claim 21, the carriage moves with respect to the printing medium to print an image in another printing direction according to a difference between the actual error distance and the designated error distance (column 15, lines 31-39).

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. Claims 1-4, 6, 16, 17 and 23 are rejected under 35 U.S.C. 103(a) as being unpatentable over Haselby in view of Ikeda.

Haselby discloses:

With regards to claims 1 and 23 a method of measuring an image alignment error for image formation in an image forming apparatus having a carriage (fig. 6), the method comprising:

directing the carriage to print first and second test marks on a printing medium according to a designated error distance (fig. 13a);

sensing only the first and second test marks, for the measuring of the image alignment error, to output first and second sensed results of the first and second test marks;

detecting an actual error distance of only the first and second test marks to compensate for the image alignment error (column 14, lines 37-45).

With regards to claims 2 and 3, printing the two test marks using different image printing methods in different printing directions (fig. 13a).

With regards to claims 6, 16 and 23, detecting an image alignment correction value by obtaining a distance difference between the designated error distance and the actual error distance (column 14, lines 37-45).

With regards to apparatus claims 16 and 17, Haselby discloses the claimed apparatus as evident from the discussion of the method claims above.

Haselby et al. does not disclose how the positions of the marks are determined.

Ikeda discloses measuring instants of time when marks are sensed to output measured instants of time and detecting an error distance using the measured instants of time (column 13, lines 48-50, column 14, line 63-column 15, line 10) and a moving

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speed of the carriage by multiplying the detected time difference by the moving speed of the carriage to generate the actual error distance (column 15, lines 6-39).

It would have been obvious to one having ordinary skill in the art at the time of the invention to modify Haselby to measure the instants of time to detect the error distance in the manner suggested by Ikeda for the purpose of accurately correcting the recording position of images recorded in forward and backward directions (column 2, lines 36-43).

Allowable Subject Matter

7. Claims 5, 11, 18 and 19 are allowed.

Response to Arguments

8. Respectfully, the idiomatic English used throughout the arguments renders the arguments most cryptic. The examiner has attempted to respond to applicant's arguments, however this has proven to be quite difficult.

Applicant argues that Haselby et al. does not disclose the designated error distance being none-zero (non-zero). Applicant points to the specification, paragraph 0016, which explains that "the designated error distance represents a distance arbitrarily designated with respect to the two test marks when the two test marks are printed". Applicant states that this is different from the actual distance between the test marks. The examiner does not agree with this argument since, while the intended error

distance is to be zero such that no correction is required, the printing device nevertheless directs the printer to print at a specified timing, which may result in the non-zero error distances depicted in figs. 13b or 13c. In other words, it is not possible to separate that which is printed and that which is designated, since it is the designation that caused the result of printing. Applicant is effectively attempting to separate the cause (designation) from the effect (non-zero error distance).

Further, concerning claim 13, the test mark print-directing unit is capable of printing any type of test marks. In other words, the limitation that the test marks are printed according to a designated non-zero error distance is a recitation of the intended use of the test mark print directing unit, which is capable of printing the patterns in the manner claimed.

Applicant argues that Ikeda detects the error distance of 3 test marks. Since the error distance between the two marks is the result achieved through the detection process, Ikeda et al. detects the error distance of only the two marks.

Applicant argues that "Ikeda determines an error distance using between a distance between two actual errors but not a distance between the designated error distance and the actual error distance". Ikeda cannot correct the error distance without determining the designated error distance. Applicant is effectively arguing that Ikeda et al. can perform a correction without knowing what the correct value should represent.

Conclusion

9. THIS ACTION IS MADE FINAL. Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the mailing date of this final action.

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10. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Julian D. Huffman whose telephone number is (571) 272-2147. The examiner can normally be reached on 10:00a.m.-6:30p.m. Monday-Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Stephen Meier can be reached on (571) 272-2149. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.



Julian D. Huffman
Primary Examiner
Art Unit 2853
20 March 2007